



## Hamm's Municipal Solid Waste Landfill: A Model Subtitle D Facility in Eastern Kansas

By Dennis Degner

The Department has chosen to feature the Hamm Municipal Solid Waste Landfill because it is a well designed and operated facility. An overview of the facility follows. The Hamm Sanitary (Municipal Solid Waste) Landfill, which is also known as the Douglas County and Jefferson County Solid Waste Landfill, started operating near Perry in Jefferson County in the summer of 1981. From 1981 until 1993, the site was developed using just the natural geology to protect the underlying soil and groundwater. The geology at the site consists primarily of clays, limestone, and shales. After removal of the limestone for construction material, the shales and clays remain for landfill operations. This type of geology is desirable for a solid waste landfill since it has low permeability, prevents and/or inhibits the vertical migration of leachate generated by liquids and/or precipitation and solid waste from reaching the underlying groundwater.

In 1993, an engineered clay liner and leachate collection system was designed and installed at the facility. After the federal Subtitle D regulations went into effect in October of 1993, KDHE upgraded the Kansas solid waste landfill regulations to be substantially equivalent to the federal regulations. In the summer of 1995, management at this facility installed their first composite clay and flexible membrane liner in the area designated as Cell 1.

Groundwater monitoring at the Hamm landfill consists of over twenty monitoring wells in three different vertical zones. These zones include the Toronto Limestone, a discontinuous, low-yielding formation which eventually will be removed from the site by mining operations, an alluvial gravel zone which yields downgradient water samples in some areas, and the Lawrence Formation, a low-yielding shale layer which underlies the entire site. Due to the geology in this area, Hamm Landfill's groundwater monitoring system will change dramatically as the landfill expands. These changes include

adding a number of additional monitoring wells in the Lawrence Formation and removing the Toronto Limestone and alluvial wells as the quarry and landfill operations remove those deposits. The landfill is currently performing detection monitoring.

Operations have progressed to the active filling of Cell 4. The status of the construction of Cell 5 as of August 8, 2001 is shown by Figures 1 and 2.



**Fig. 1. Cell 5 Composite Liner Construction.** Clay component of the **composite** liner visible in the foreground is 2 feet thick and very impermeable ( $1 \times 10^{-7}$  cm/sec.) The 60 mil textured HDPE liner is already in place on the north slope.

The currently approved design plan has a total of 33 lined cells. The facility, which currently accepts between 1,200 to 1,500 tons of municipal solid waste per day, has an estimated design life of 160 years. The facility receives waste from Jefferson County and 12 other northeast Kansas counties - Washington, Marshall, Brown, Riley,

Dickinson, Chase, Lyon, Osage, Douglas, Franklin, Johnson, and Leavenworth.

In summary, the management team of this facility appears to apply sound technical procedures and fiscal principles to current operations and to planning for the future. This is the only privately operated regional landfill in the state that uses a trust fund to provide financial assurance for closure and post-closure care. Although financial assurance can be provided through seven different financial instruments, a trust fund is the only financial assurance method that provides an accumulation of actual dollars. A trust fund is KDHE's preferred financial assurance instrument.



**Fig. 2. Cell 5 Anchor Trench Construction.** The HDPE liner is anchored in a trench and then deployed down slope. This ensures that the HDPE liner remains in place to create an impermeable barrier.

## New Regulations for Construction and Demolition Landfills are Needed

by Christine Mennicke, Bureau of Waste Management

Construction and demolition (C&D) landfills are permitted facilities that accept only certain types of waste, primarily from the construction, remodeling, repair, or demolition of buildings and roads. Current state law strictly prohibits the disposal of municipal solid waste and chemical containers, whether full or empty, in these facilities. There are currently 121 C&D landfills in Kansas and over one million tons of C&D waste were disposed in these landfills last year. At the present time, regulations concerning the design and operation of C&D landfills in Kansas are minimal. The Bureau of Waste Management (BWM) identified the need to develop a comprehensive set of C&D landfill regulations for two primary reasons: (1) adverse environmental impacts can occur through the improper operation of these landfills and (2) a method to monitor and enforce compliance with the state disposal restrictions is needed to satisfy the U.S. EPA and prevent strict federal standards from being applied to these facilities.

A task force, which included private, city, and county landfill operators, consultants, and BWM staff, met on July 13, 2000 and April 18, 2001 to discuss topics related to C&D landfills and proposed content for the new C&D landfill regulations. Based on recommendations from the task force, BWM has developed a set of regulations which include requirements for permitting, location, design, operations, closure, and post-closure care. In some cases, groundwater monitoring and/or corrective action may also be required.

In September, BWM plans to begin the formal adoption process for these regulations, which includes reviews by the Department of Administration, the Attorney General, and the Joint Committee on Administrative Rules & Regulations; a two-month public comment period; and a public hearing. The proposed regulations will be revised if necessary, adopted by the Secretary of Health and Environment and will become effective 15 days after their promulgation in the Kansas Register. The entire process typically takes about six months.



# The Importance of Outreach Efforts in Kansas Schools

by John Mitchell, Bureau of Waste Management

Since launching the Kansas Don't Spoil It program in September 1996 the Bureau of Waste Management (BWM) has made an effort to take this message to Kansas school children. Why is outreach in Kansas schools important? Because affecting attitudes and behaviors which negatively impact the environment are sometimes harder to overcome in older individuals. For this reason, KDHE has chosen to take the "Don't Spoil It" message to Kansas schools.

The initial effort was preparation of the "Don't Spoil It" Activity Book which was distributed to schools throughout the state. Through the activities in this book classroom teachers are able to give school children a tangible and practical understanding of resource conservation and the environmental impact of solid waste. Activities focus on composting, household hazardous waste, landfill operations, old tire disposal, illegal dumping issues, water quality issues, and much more. The activity book was updated in 1999.

This is the fourth year that KDHE has made *Trash Talk!*, a quarterly newsletter available to every fourth grader in the state. Each edition of *Trash Talk!* features a Kansas recycling success story, information on what's going on in Kansas, as well as other fun and educational activities. Additional activities and project ideas are included in the accompanying Teacher's Guide.

This is also the fourth year KDHE has contracted with eco-troubadour Stan Slaughter, who visits schools across the state delivering recycling, composting and environmental education programming. Mr. Slaughter provides innovative and exciting environmental education with songs, materials, and hands on experiences.

The 2001-2002 school year will be the second year that KDHE has contracted with Steve Trash®, Illusionist and Eco-Entertainer. Steve's shows teach the importance of recycling while entertaining the audience with magic and illusions.

Finally, KDHE, in conjunction with corporate sponsors, hosts an art contest each year for Kansas students (kindergarten through 12<sup>th</sup> grade). Participants are invited to submit original art based on environmental themes. A winner is selected from each grade level and the winning entries are featured in the Kansas Don't Spoil It! calendar for the following year.

Each of these Kansas Don't Spoil It programs provides learning opportunities to Kansas kids. For more information on any of these programs please feel free to contact me at 785-296-1608 or by e-mail at [jmitchel@kdhe.state.ks.us](mailto:jmitchel@kdhe.state.ks.us). Look for more information on the new Kansas Don't Spoil It website, which will soon be accessible through [www.kdhe.state.ks.us/waste](http://www.kdhe.state.ks.us/waste).

## Did You Know .....

- ☎ In 1990 there were only 257 recycling centers and programs in Kansas and no composting facilities. In 2001 there are over 1,400 recycling centers and programs in Kansas including 100 composting programs located in 54 counties.
- ☎ When is the most trash disposed of in Kansas? 54 percent of the disposal areas report that April, May, and June are the busiest and 32 percent of the disposal areas report that the months of July, August, and September are the busiest.
- ☎ Since 1992, over 11.5 million waste tires have been cleaned up through KDHE grants and contracts.
- ☎ The largest tire pile in Kansas was located in Wichita and contained nearly 1.5 million tires or about four tires for every person in the city. The pile was cleaned up in 1997.



# Composting Growth in Kansas

In the late 1980s, a few cities and counties came to KDHE with the idea of developing local composting programs. At that time, solid waste permits were not required. KDHE simply issued approval letters authorizing this waste management method. No records were kept by the operator to track the activities at the site and KDHE conducted no official facility inspections.

In the early 1990s, new federal solid waste regulations, referred to as the “Subtitle D standards,” went into effect. These regulations significantly changed the way landfills were designed and operated. In response to the federal requirements, the Kansas legislature and KDHE updated Kansas laws and regulations including a requirement for composting facilities to obtain “solid waste processing facilities permits.” This action would ultimately subject these facilities to design and operating standards, as well as routine state inspections. The new landfill regulations resulted in an increase in landfilling costs. Several publicly operated small landfills decided to close rather than comply with the new standards. Higher costs and long distance waste transfers prompted more local officials to consider composting.

As composting became more popular due to Subtitle D and a growing awareness in the benefits of waste reduction, a Kansas visionary, Wes Adell from the City of Lindsborg, met with KDHE and suggested that a statewide conference be held to promote composting and provide technical guidance to communities wishing to start programs. This idea evolved into the first Composting Works! conference held in Lindsborg in March 1995. Over 200 people attended and the conference became one of the premier events in the Midwest. The conference has been held annually since that time and now bears the name Recycling & Composting Works! Prior to the first conference, there were only 12 permitted composting facilities; however, the combination of the conference and state grants to help communities establish programs resulted in steady growth to where we now have 76 permitted facilities and 14 small registered sites (less than one-half acre in size).

In summary, the increase in composting in Kansas has resulted from several factors including higher landfill costs, landfill closures, technical training, public education, state financial aid, and a goal to conserve landfill space. But unlike many states, Kansas did not find the need to enact a statewide yard waste ban to stimulate these improvements.



- ▲ County Compost Site (26)
- ★ City Compost Site (41)
- Registered (under 1/2 acre) (15)
- 🚢 Military Compost Site (1)
- Private Compost Site (7)

# October 9, 2001 – The Vertical Expansion Deadline for Municipal Solid Waste Landfills is Here

In 1996 nine municipal solid waste landfills (MSWLFs) that were subject to Subtitle D design and operating requirements chose to continue operations through vertical expansions in lieu of constructing composite lined cells in a lateral direction. These MSWLFs - Allen County, Barton County, Coffey County, Finney County, Greenwood County, Harvey County, McPherson County, Resource Recovery (in Montgomery County), and the City of Wichita (Brooks) decided to operate under this manner until October 9, 2001.

The time has now come for all of these facilities to either construct composite lined cells and leachate collection systems in conformance with current KDHE Subtitle D designs or close. At this time, only Allen County, Barton County, Coffey County, Finney County (West Plains - now owned and operated by Waste Connections, Inc.), and Resource Recovery will continue to operate after the deadline. All of these facilities except Barton County will be operating in lined cells by October 9th. Barton County requested an

extension to the deadline to help them complete construction of the required leachate collection system and the first lined cell. KDHE expects the cell to be completed and available on or about December 14, 2001 or about 2 months after the deadline.

Several of the publicly-owned landfills which operated under expiring vertical expansion permits will close MSW operations on or before the October 9, 2001 deadline and convert to the disposal of construction and demolition waste only. These include the landfills owned by Greenwood, Harvey, and McPherson Counties and the City of Wichita. Each of these landfills are in various stages of completing the necessary permit modifications to convert operations from Subtitle D MSW landfills to C & D landfills. It is anticipated that all of these landfills will continue operations as C & D facilities after the deadline with no downtime. The MSW generated after the deadline, which had been disposed in these facilities, will be transferred to regional landfills.

## Calendar Items

- |                       |  |
|-----------------------|--|
| <b>Nov. 2-3, 2001</b> | KACEE Environmental Education Conference, Great Bend, KS |
| <b>Nov. 7-8, 2001</b> | KDHE MSWLF & SAL Operator Training, Hutchinson, KS       |
| <b>Nov. 15, 2001</b>  | America Recycles Day                                     |

### Solid Waste Update



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# Kansas Partnerships Making a Difference

by Kent Foerster (as adapted from the 2000 Kansas Solid Waste Management Plan)

**I**t is a story often repeated. People with a vision, to improve solid waste management and increase waste reduction create informal and formal agreements that result in success stories. In Kansas, there are some municipalities and counties that actively work together and cooperate while others ignore or actively compete with each other. In some cases the arrangements involve the business community and non-profit organizations, some of which are run by volunteers while others provide disadvantaged or disabled people with jobs. All have varying levels of success through cooperation and partnerships.

Many communities and counties across Kansas are recognizing the economic, social and environmental benefits of recycling, reuse, source reduction and waste reduction. Rather than shipping their wastes long distances or filling up their landfills too quickly, some local governments have started to pay recycling programs in lieu of paying landfill tonnage fees. This provides the funding base for many programs and a direct market incentive to reduce, reuse and recycle. Other communities are investigating Pay-As-You-Throw (volume based pricing of trash service), full cost accounting and curbside programs to enhance and expand their capabilities and successes.

Around Kansas you will find a broad range of programs that involve numerous people and organizations. From simple drop off programs to broad based regional programs. Any program can be comprised of cities, counties, local economic development offices, conservation districts, non-profit and private sector recycling companies. Some have recycling trailers at junior and senior high school parking lots or a local automotive garage that has been converted into the recycling station. In many rural counties, everyone seems to get involved including volunteers from Kiwanis, Rotary, other civic groups, elementary classes, high school ecology clubs, church youth groups, 4-H groups, Girl and Boy Scouts and other caring individuals. As small community programs grow and gain stability, they can start working with other cities or counties in the region to combine materials destined for recycling markets to get better prices.

Other counties have formal solid waste utilities or operating authorities that handle all solid waste issues thereby creating a government-sponsored partnership that is self supporting and funded. These programs often have stronger goals and local requirements to ensure success. In some large cities, groups of volunteers have carried the recycling torch for decades where local government, for various reasons, has not been an active participant. To establish litter collection programs, monitor drop off boxes, or organize meetings and rallies; these individuals have formed partnerships as they could. These relationships are even more important when the market has a downturn. The need for cooperation and partnership is even greater in difficult times.

In Lindsborg, a small tourist-based and college community, strong community leadership combined with great individual efforts created an internationally recognized tree growing out station and composting center. This community also partnered with KDHE and others to host the statewide composting and later recycling and composting conference for six years.

Over the past two decades, the small volunteer and business-sponsored recycling programs have grown and changed. In 1983, there were only 43 recycling centers and programs in Kansas. By 2001 the number has grown to more than 1,400. Much of the growth has been associated with the development of successful Kansas partnerships which began with an idea and a person or two who felt compelled to make a difference. KDHE is a proud partner with many of these programs through the **Recycling and Composting WORKS!** Conference, workshops, solid waste management planning, our numerous grant and clean up programs, public education and the regulatory framework.

With creativity, determination, perseverance, ingenuity, luck and financial and technical assistance from the state, these programs have flourished. All because individuals created partnerships that made a difference.



**Information about recipients of  
Competitive Solid Waste Plan Implementation Grants  
is available on the KDHE web site at:  
[www.kdhe.state.ks.us/waste](http://www.kdhe.state.ks.us/waste)**

# Management of Waste Electronics in Kansas

by Bill Bider, Director, Bureau of Waste Management

The hottest national waste management issue in 2001 seems to be the disposal and/or recycling of waste electronics. Numerous articles have been written in technical journals and newsletters and many regional and national meetings have been held to discuss how states and the U.S. EPA should regulate this growing waste stream. The electronics issue was the driving force leading to the formation of the Product Stewardship Institute whose mission is to work with manufacturers to minimize the impacts associated with the production, use, and disposal of their consumer products.

Several states have concluded that consumer electronics should not be managed as non-hazardous solid waste because of the lead which is present in the glass monitor screens used in cathode ray tubes (CRTs). Consequently, CRTs have been banned from disposal in MSW landfills in some states and by some local governments. A secondary reason for the landfill bans is the thought that CRTs and other consumer electronics comprise an ever-growing fraction of the waste stream and the conservation of landfill space is necessary.

Some computer manufacturers and consumer retail establishments have recognized that their industry is in the spotlight and they have come forward to work with the Product Stewardship Institute and states to develop ways to divert consumer electronics, especially CRTs, from landfill disposal. The infrastructure to recover old computers is improving; however, it is still inadequate in most locations, especially the rural states of the Midwest.

The high level of national concern regarding the management of consumer electronics has not yet reached Kansas. KDHE has not observed any problems with lead contamination in groundwater near old landfills even though past disposal practices may have included significant amounts of lead in paints, solder, and gasoline spill clean-up



residues. Experience at various contaminated sites has demonstrated that lead is fairly immobile with respect to downward migration to groundwater.

Lead strongly adheres to soil particles in the upper 1 to 2 feet of soil, especially clay-like soils which line landfills.

KDHE is concerned about the conservation of landfill space; however, our state solid waste plan emphasizes local decision-making when it comes to waste recycling and diversion activities. We believe cities, counties, and

private companies should decide what the most appropriate waste reduction activities should be, not the state.

KDHE also has raised questions nationally regarding the wisdom of mandating recycling programs for products like electronics without considering the total natural resource and environmental impacts associated with recovery and recycling activities, especially from rural areas. The energy and environmental impacts associated with the collection, storage, transportation, and processing of electronics from low density generation points may exceed benefits. In addition, landfill bans could greatly impact local governments which might need to establish diversion programs. Any thought of implementing a national landfill ban should be delayed until such impacts are better understood.

At this time, Kansas is allowing computers and other consumer electronics to be disposed in MSW landfills. KDHE does not require generators to test such wastes to determine whether the waste is hazardous for lead. KDHE is supportive of voluntary programs to divert such wastes for recycling where it is practical. New federal regulations could affect our current practices, especially an EPA decision to classify CRTs as a universal waste subject to certain management standards. We will try to keep you informed on future developments in this area.



**264-21**

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**We're Moving Uptown!!!**



Effective October 9, 2001  
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(Phone numbers will remain the same)